

Applicant : Tohru Watanabe  
Serial No. : 09/696,393  
Filed : October 25, 2000  
Page : 2 of 6

Attorney's Docket No.: 10449-022001 / P1S2000177US

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

Please cancel claims 1, 12, 16, and amend claims 2, 6 7, 9, 11, 13, 15, and 17 as follows:

1. (Cancelled)

2. (Currently Amended) ~~The image signal processor according to claim 1,~~ An image signal processor for processing a plurality of image signals associated with in each of a plurality of screens, comprising:

an image memory circuit for storing a signal corresponding to a target pixel and signals corresponding to a plurality of peripheral pixels adjacent to the target pixel;

a deficiency candidate detection circuit, connected to the image memory circuit, for comparing the signal of the target pixel with a threshold value set in accordance with the signals of the plurality of peripheral pixels to detect a deficient pixel candidate and generating a comparison result;

a deficiency determining circuit, connected to the deficiency candidate detection circuit, for determining a deficient pixel according to continuity of the deficient pixel candidate based on a plurality of comparison results over the plurality of screens;

a position memory circuit, connected to the deficiency determining circuit, for storing deficiency information of a position of the deficient pixel determined by the deficiency determining circuit; and

a deficiency correction circuit, connected to the position memory circuit, for correcting the signal of the target pixel which is deficient in accordance with the deficiency information, wherein the deficiency candidate detection circuit computes a difference between a maximum level and a minimum level of the signals of the plurality of peripheral pixels, producing a first threshold value by adding the difference to an average level of the signals of the plurality of peripheral pixels and producing a second threshold value by subtracting the difference from the average level.

3. (Original) The image signal processor according to claim 2, wherein the deficiency candidate detection circuit produces each of the first and second threshold values in a form of a plurality of sub-threshold values, and detects a deficient pixel candidate by using the sub-threshold values.

Applicant : Tohru Watanabe  
Serial No. : 09/696,393  
Filed : October 25, 2000  
Page : 3 of 6

Attorney's Docket No.: 10449-022001 / P1S2000177US

4. (Original) The image signal processor according to claim 3, wherein the deficiency determining circuit performs a deficiency determining operation continuously over a plurality of fields to determine a position of a deficient pixel and stops operating together with the deficiency candidate detection circuit.

5. (Original) The image signal processor according to claim 4, wherein the deficiency determining circuit repeats the deficiency determining operation in a predetermined cycle.

6. (Currently Amended) The image signal processor according to claim [[1]] 2, wherein the position memory circuit includes:

- a first memory for temporarily storing position information of the deficient pixel together with a result of detection by the deficiency candidate detection circuit; and
- a non-volatile second memory for storing the position information of the deficient pixel read from the first memory.

7. (Currently Amended) The image signal processor according to claim [[1]] 2, wherein the deficiency determining circuit receives image pickup control information from an image pickup device for producing the image signal and determines a deficient pixel by using the image pickup control information and the threshold value.

8. (Original) The image signal processor according to claim 7, wherein the deficiency determining circuit receives the image pickup control information from the image pickup device, estimates a luminance of a subject from the image pickup control information, and determines a deficient pixel by using the threshold value when the estimated luminance of the subject lies within a predetermined range.

9. (Currently Amended) The image signal processor according to claim [[1]] 2, wherein the deficiency determining circuit determines a deficient pixel for each of a plurality of segmental areas of one screen.

10. (Original) The image signal processor according to claim 9, wherein the deficiency determining circuit determines a deficient pixel repeatedly in a time division multiplexed manner for each of the plurality of segmental areas of one screen.

11. (Currently Amended) The image signal processor according to claim [[1]] 2, wherein at least one of the deficiency determining circuit and the correction information memory circuit is connected to an external unit via a bus and a determination condition for a deficient pixel including the threshold value is altered by the external unit.

Applicant : Tohru Watanabe  
Serial No. : 09/696,393  
Filed : October 25, 2000  
Page : 4 of 6

Attorney's Docket No.: 10449-022001 / P1S2000177US

12. (Cancelled)

13. (Currently Amended) ~~The method according to claim 12,~~ A method of detecting a deficient pixel in a plurality of pixels associated with each of a plurality of screens, comprising the steps of:

detecting a deficient pixel candidate by comparing a signal of a target pixel in one of the plurality of screens with a threshold value set in accordance with signals of a plurality of peripheral pixels adjacent to the target pixel;

storing a position of the detected deficient pixel candidate;

recomparing a signal of a target pixel in another of the plurality of screens which corresponds to the position stored in the position storing step with the threshold value;

storing a comparison result of the recomparing step;

repeating the recomparing step and the comparison result storing step a predetermined number of times over the plurality of screens; and

detecting a deficient pixel in accordance with a plurality of comparison results obtained by the position storing step and the repeating step, wherein the deficient-pixel-candidate detecting step includes:

computing an average level from the signals of the plurality of peripheral pixels adjacent to the target pixel;

detecting a maximum level and a minimum level from the signals of the plurality of peripheral pixels;

computing a difference between the maximum level and the minimum level; and

setting a threshold value by adding the difference to the average level or subtracting the difference from the average level.

14. (Original) The method according to claim 13, further comprising the step of performing a correction on an image signal of the detected deficient pixel and producing a deficiency-corrected image signal.

15. (Currently Amended) The method according to claim ~~[[12]]~~ 13, wherein the deficient-pixel detecting step detects a deficient pixel in accordance with a plurality of comparison results and an image pickup condition for producing image signals.

16. (Cancelled)

17. (Currently Amended) ~~The method according to claim 16,~~ A method of detecting a deficient pixel in a plurality of pixels associated with each of a plurality of screens, comprising the steps of:

detecting a first deficient pixel candidate by comparing a signal of a target pixel in one of

Applicant : Tohru Watanabe  
Serial No. : 09/696,393  
Filed : October 25, 2000  
Page : 5 of 6

Attorney's Docket No.: 10449-022001 / P1S2000177US

the plurality of screens with a threshold value set in accordance with signals of a plurality of peripheral pixels adjacent to the target pixel;

storing a position of the first deficient pixel candidate;

detecting a second deficient pixel candidate by comparing a signal of a target pixel in another of the plurality of screens with the threshold value;

determining if a position of the first deficient pixel candidate coincides with a position of the second deficient pixel candidate;

updating information of the stored position of the first deficient pixel candidate in such a way that only position information of that first deficient pixel candidate which has been determined to have a match in the coincidence determining step remains;

repeating the second-deficient-pixel-candidate detecting step, the coincidence determining step and the updating step by a predetermined number of times over the plurality of screens; and

detecting a deficient pixel in accordance with position information of deficient pixel candidates acquired by the repeating step, wherein the step of detecting the first and second deficient pixel candidates includes:

computing an average level from the signals of the plurality of peripheral pixels adjacent to the target pixel;

detecting a maximum level and a minimum level from the signals of the plurality of peripheral pixels;

computing a difference between the maximum level and the minimum level; and

setting a threshold value by adding the difference to the average level or subtracting the difference from the average level.

18. (Original) The method according to claim 17, further comprising the step of performing correction on an image signal of the detected deficient pixel and producing a deficiency-corrected image signal.